1/18 = 8

cagctacatg ccattaatct ggaaggaacg ggcaggaaag ccaccatgca aacaacccag agetectgee eeggeageee eccagatact gaggatgget gggageeeat cetatgeagg ggagagatca acttcggagg gtctgggaag aagcgaggca agtttgtgaa ggtgccaagc agtgtggccc cctctgtgct ttttgaactc ctgctcaccg agtggcacct gccagccccc aacctggtgg tgtccctggt gggtgaggaa cgacctttgg ctatgaagtc gtggcttcgg gatgtcctgc gcaaggggct ggtgaaagca gctcagagca caggtgcctg gatcctgacc agtgccctcc acgtgggcct ggcccgccat gttggacaag ctgtacgtga tcactctctg gctagcacat ccaccaagat ccgtgtagtg gccatcggaa tggcctctct ggatcgaatc cttcaccgtc aacttctaga tggtgtccac caaaaggagg atactcccat ccactaccca gcagatgagg gcaacattca gggacccctc tgcccctgg acagcaatct ctcccacttc atcettgtgg agtcaggcgc cettgggagt gggaacgacg ggctgacaga getgcagetg agcctggaga agcacatctc tcagcagagg acaggttatg ggggcaccag ctgcatccag atacctgtcc tttgcctgtt ggtcaatggt gaccccaaca ccctagagag gatttccagg gcagtggagc aggctgccc atggctgatc ctggcaggtt ctggtggcat tgctgatgta ctcgctgccc tggtgagcca gcctcatctc ctggtgcccc aggtggctga gaagcagttc agagagaaat tccccagcga gtgtttctct tgggaagcca ttgtacactg gacagagctg ttacagaaca ttgctgcaca ccccacctg ctcacagtat atgacttcga gcaggagggt tcggaggacc tggacactgt catcctcaag gcacttgtga aagcctgcaa gagccacagc caagaagccc aagactacct agatgagctc aagttagcag tggcctggga tcgcgtggac attgccaaga gtgaaatctt caatggggac gtggaatgga agtcctgtga cttggaagag gtgatgacag atgccctcgt gagcaacaag cctgactttg tccgcctctt tgtggacagc ggtgctgaca tggccgagtt cttgacctat gggcggctgc agcagcttta ccattctgtg tececeaaga geeteetett tgaactgetg eagegtaage atgaggaggg taggetgaca ctggccggcc tgggtgccca gcaggctcgg gagctgccca ttggtctgcc tgccttctca ctccacgagg tctcccgcgt actcaaagac ttcctgcatg acgcctgccg tggcttctac caggacggc gcaggatgga ggagagggg ccacctaagc ggcccgcagg ccagaagtgg ctgccagacc tcagtaggaa gagtgaagac ccttggaggg acctgttcct ctgggctgtg ctgcagaatc gttatgagat ggccacatac ttctgggcca tgggccggga gggtgtggct gctgctctgg ctgcctgcaa gatcataaag gaaatgtccc acctggagaa agaggcagag gtggcccgca ccatgcgtga ggccaagtat gagcagctgg ccctggatct tttctcagag tgctacggca acagtgagga ccgtgccttt gccctgctgg tgcgaaggaa ccacagctgg agcaggacca cgtgcctgca cctggccact gaagctgatg ccaaggcctt ctttgcccat gacggtgtgc aagcatteet gaccaagate tggtggggag acatggeeac aggeacacee atcctacggc ttctgggtgc cttcacctgc ccagccctca tctacacaaa cctcatctcc ttcagtgagg atgccccgca gaggatggac ctagaagatc tgcaggagcc agacagcttg gatatggaaa agagcttcct atgcagccgg ggtggccaat tggagaagct aacagaggca ccaagggctc caggcgatct aggcccacaa gctgccttcc tgctcacacg gtggaggaag ttctggggcg ctcctgtgac tgtgttcctg gggaatgtgg tcatgtactt cgcattcctc ttcctgttca cctatgtcct gctggtggac ttcaggccac caccccaggg gccgtctgga tccgaggtta ccctctattt ctgggtgttc acactggtgc tggaggaaat ccgacagggc ttcttcacag atgaggacac gcacctggtg aagaaattca ctctgtatgt ggaagacaac tggaacaagt gtgacatggt ggccatcttc ctgttcattg tgggagtcac ctgtagaatg gtgccctcgg tgtttgaggc tggcaggacc gttctggcca ttgacttcat ggtgttcaca cttcggctca tccacatctt tgctattcac aagcagttgg gtcctaagat catcattgta gagcgaatga tgaaggatgt cttctttttc ctcttcttcc tgagcgtatg gcttgtggcc tatggtgtga ccactcaggc cctgctgcat ccccatgatg gccgtttgga gtggattttc cgccgtgtgc tatacaggcc ttacctgcag atctttgggc aaatccctct ggatgaaatt gatgaggete gtgtgaactg ttetetteac cetetgetge tggaaagete ggetteetge cctaatctct atgccaactg gctggtcatt ctcctgctgg ttaccttcct gcttgtcact

FIG.1A

		_	-· · •		
aatgtgctgc	tcatgaacct	tctgatcgcc	atgttcagct	acacattcca	ggtggtgcaa
yycaatgcag	acatgttctg	gaagtttcaa	cgctaccacc	tcatcqttqa	ataccatoga
agaccagctc	tggccccgcc	cttcatcctg	ctcagccacc	tgagcctggt	geteaageag
gtcttcagga	aggaagccca	gcataagcga	caacatctgg	agagagactt	acctaacccc
ttggaccaga	agatcattac	ctgggaaacg	gttcaaaagg	agaacttcct	gagtaccatg
gagaaacgga	ggagggacag	cgagggggag	gtgctgagga	aaacqqcaca	cagagtggac
ttgattgcca	aatacatcgg	ggggctgaga	gagcaagaaa	agaggatcaa	atatetagaa
tcacaggcca	actactgtat	gctcctcttg	tcctctatga	cggatacact	aactccaaaa
ggcacctact	caagctctca	gaactgtggt	tgcaggagtc	agccagcctc	tactagagac
agggagtacc	tagagtctgg	cttgccaccc	tctgacacct	gaaatggaga	aaccacttgc
tctagagccc	cagacctggc	cacatcgagt	ttttqqqqca	catcaacctt	ccccactcc
cagcagcccc	aagaaatggt	cttcaaggcc	ttgctacaga	tcacttctta	gacatecett
cctaagagaa	tgaaactcat	gtctttggca	tctattcggg	agcctcagaa	gtatectete
cagcagggca	agatttttca	tgtcccacta	aagctttcac	tggcttggac	tggacagetg
gatctggcca	agtcctacat	aggacaccat	ctgcctggat	ggggctattt	aggtetaace
cctgtcttac	cctgagttcc	taagaagcca	acctcttaaa	cactaggttt	ctttctgacc
cctgacccac	tcattagctg	accagctcct	agagggcagg	actcagatct	attgtaatta
cctcccatct	ttcaccccc	acagcattat	ctgtctgatc	attctggcag	aaaccccaag
atattgctca	agggtaccca	atgctacttt	actttctata	aagcctgtag	accacctcaa
aaaaaaaaa	aaaaaaaaa	aaaaaaaaa	aaaaaaaaa	aaaaaaaaa	aaaaaaaaa
aaaaaaaaa	aaaaaaa				

FIG.1B

MQTTQSSCPGSPPDTEDGWEPILCRGEINFGGSGKKRGKFVKVPSSVAPSVLFELLLTEWHLPAPNLVVSLVGEERPLAMKSWLRDVLR DSNLSHFILVESGALGSGNDGLTELQLSLEKHISQQRTGYGGTSCIQIPVLCLLVNGDPNTLERISRAVEQAAPWLILAGSGGIADVLA KGLVKAAQSTGAWILTSALHVGLARHVGQAVRDHSLASTSTKIRVVAIGMASLDRILHRQLLDGVHQKEDTPIHYPADEGNIQGPLCPL FWAMGREGVAAALAACKIIKEMSHLEKEAEVARTMREAKYEQLALDLFSECYGNSEDRAFALLVRRNHSWSRTTCLHLATEADAKAFFA HDGVQAFLTKIWWGDMATGTPILRLLGAFTCPALIYTNLISFSEDAPQRMDLEDLQEPDSLDMEKSFLCSRGGQLEKLTEAPRAPGDLG ALVSQPHLLVPQVAEKQFREKFPSECFSWEAIVHWTELLQNIAAHPHLLTVYDFEQEGSEDLDTVILKALVKACKSHSQEAQDYLDELK LAVAWDRVDIAKSEIFNGDVEWKSCDLEEVMTDALVSNKPDFVRLFVDSGADMAEFLTYGRLQQLYHSVSPKSLLFELLQRKHEEGRLT PQAAFLLTRWRKFWGAPVTVFLGNVVMYFAFLFLFTYVLLVDFRPPQGPSGSEVTLYFWVFTLVLEEIRQGFFTDEDTHLVKKFTLYV EDNWNKCDMVAIFLFIVGVTCRMVPSVFEAGRTVLAIDFMVFTLRLIHIFAIHKQLGPKIIIVERMMKDVFFFLFFLSVWLVAYGVTTQ FQVVQGNADMFWKFQRYHLIVEYHGRPALAPPFILLSHLSLVLKQVFRKEAQHKRQHLERDLPDPLDQKIITWETVQKENFLSTMEKRR RDSEGEVLRKTAHRVDLIAKYIGGLREQEKRIKCLESQANYCMLLLSSMTDTLAPGGTYSSSQNCGCRSQPASARDREYLESGLPPSDT LAGLGAQQARELPIGLPAFSLHVSRVLKDFLHDACRGFYQDGRRMEERGPPKRPAGQKWLPDLSRKSEDPWRDLFLWAVLQNRYEMATY ALLHPHDGRLEWIFRRVLYRPYLQIFGQIPLDEIDEARVNCSLHPLLLESSASCPNLYANWLVILLLVTFLLVTNVLLMNLLIAMFSYT

FIG. 2

atgcaggatg tccaaggccc ccgtcccgga agccccgggg atgctgaaga ccggcgggag ctgggcttgc acaggggcga ggtcaacttt ggagggtctg ggaagaagcg aggcaagttt gtacgggtgc cgagcggagt ggccccgtct gtgctctttg acctgctgct tgctgagtgg cacctgccgg cccccaacct ggtggtgtcc ctggtgggtg aggagcagcc tttcgccatg aagteetgge tgegggatgt getgegeaag gggetggtga aggeggetea gageaeagga gcctggatcc tgaccagtgc cctccgcgtg ggcctggcca ggcatgtcgg gcaggccgtg cgcgaccact cgctggccag cacgtccacc aaggtccgtg tggttgctgt cggcatggcc tcgctgggcc gcgtcctgca ccgccgcatt ctggaggagg cccaggagga ttttcctgtc cactaccctg aggatgacgg cggcagccag ggccccctct gttcactgga cagcaacctc tcccacttca tcctggtgga gccaggcccc ccgggggaagg gcgatgggct gacggagctg cggctgaggc tggagaagca catctcggag cagagggcgg gctacggggg cactggcagc atcgagatcc ctgtcctctg cttgctggtc aatggtgatc ccaacacctt ggagaggatc tccagggccg tggagcaggc tgccccgtgg ctgatcctgg taggctcggg gggcatcgcc gatgtgcttg ctgccctagt gaaccagccc cacctcctgg tgcccaaggt ggccgagaag cagtttaagg agaagttccc cagcaagcat ttctcttggg aggacatcgt gcgctggacc gagggctccg aggagctgga cacggtcatc ctgaaggcgc tggtgaaagc ctgcaagagc cacagccagg agcctcagga ctatctggat gagctcaagc tggccgtggc ctgggaccgc gtggacatcg ccaagagtga gatcttcaat ggggacgtgg agtggaagtc ctgtgacctg gaggaggtga tggtggacgc cctggtcagc aacaagcccg agtttgtgcg cctctttgtg gacaacggcg cagacgtggc cgacttectg acgtatgggc ggctgcagga gctctaccgc tccgtgtcac gcaagagcct gctcttcgac ctgctgcagc ggaagcagga ggaggcccgg ctgacgctgg ccggcctggg cacccagcag gcccgggagc cacccgcggg gccaccggcc ttctccctgc acgaggtctc ccgcgtactc aaggacttcc tgcaggacgc ctgccgaggc ttctaccagg acggccggcc aggggaccgc aggagggcgg agaagggccc ggccaagcgg cccacgggcc agaagtggct gctggacctg aaccagaaga gcgagaaccc ctggcgggac ctgttcctgt gggccgtgct gcagaaccgc cacgagatgg ccacctactt ctgggccatg ggccaggaag gtgtggcagc cgcactggcc gcctgcaaaa tcctcaaaga gatgtcgcac ctggagacgg aggccgaggc ggcccgagcc acgcgcgagg cgaaatacga gcggctggcc cttgacctct tctccgagtg ctacagcaac agtgaggccc gcgccttcgc cctgctggtg cgccggaacc gctgctggag caagaccacc tgcctgcacc tggccaccga ggctgacgcc aaggeettet ttgeccaega eggegtteag geetteetga eeaggatetg gtgggggae atggccgcag gcacgcccat cctgcggctg ctaggagcct tcctctgccc cgccctcgtc tataccaacc tcatcacctt cagtgaggaa gctcccctga ggacaggcct ggaggacctg caggacctgg acagcctgga cacggagaag agcccgctgt atggcctgca gagccgggtg gaggagctgg tggaggccc gagggctcag ggtgaccgag gcccacgtgc tgtcttcctg ctcacacgct ggcggaaatt ctggggcgct cccgtgactg tgttcctggg gaacgtggtc atgtacttcg ccttcctctt cctgttcacc tacgtcctgc tggtggactt caggccgccc ccccagggcc cctcagggcc cgaggtcacc ctctacttct gggtctttac gctggtgctg gaggaaatcc ggcagggctt cttcacagac gaggacacac acctggtgaa gaagttcaca ctgtatgtgg gggacaactg gaacaagtgt gacatggtgg ccatcttcct gttcatcgtg ggtgtcacct gcaggatgct gccgtcggcg tttgaggctg gccgcacggt cctcgccatg gacttcatgg tgttcacgct gcggctgatc catatctttg ccatacacaa gcagctgggc cccaagatca tcgtggtaga gcgcatgatg aaggacgtct tcttcttcct cttcttctg agcgtgtggc tcgtggccta cggtgtcacc acccaggcgc tgctgcaccc ccatgacggc cgcctggagt ggatcttccg ccgggtgctc taccggccct acctgcagat cttcggccag atcccactgg acgagattga tgaagcccgt gtgaactgct ccacccaccc actgctgctg gaggactcac catcctgccc cagcctctat gccaactggc tggtcatcct cctgctggtc accttectgt tggtcaccaa tgtgetgete atgaaeetge teategeeat gtteagetae acgttccagg tggtgcaggg caacgcagac atgttctgga agttccagcg ctacaacctg

FIG.3A

attgtggagt accacgagcg ccccgcctg gccccgcctt tcatcctgct cagccacctg agcctgacgc tccgcgggt cttcaagaag gaggctgagc acaagcggga gcacctggag agagacctgc cagacccctt ggaccagaag gtcgtcacct gggagacagt ccagaaggag aacttcctga gcaagatgga gaagcggagg agggacagcg agggggaggt gctgcggaaa accgcccaca gagtggactt cattgccaag tacctcgggg ggctgagaga gcaagaaaag cgcatcaagt gtctggagtc acagatcaac tactgctcgg tgctcgtgtc ctccgtggct gacgtgctgg cccacgaggtgg cggccccgg agctctcagc actgtggcga ggcaagccag ctggtggctg ctgaccacag aggtggttta gatggctgg aacaacccgg ggctggccag cctccctcgg accacatga

FIG.3B

MQDVQGPRPG SPGDAEDRRE LGLHRGEVNF GGSGKKRGKF VRVPSGVAPS VLFDLLLAEW HLPAPNLVVS LVGEEQPFAM KSWLRDVLRK GLVKAAQSTG AWILTSALRV GLARHVGQAV RDHSLASTST KVRVVAVGMA SLGRVLHRRI LEEAQEDFPV HYPEDDGGSQ GPLCSLDSNL SHFILVEPGP PGKGDGLTEL RLRLEKHISE QRAGYGGTGS IEIPVLCLLV NGDPNTLERI SRAVEQAAPW LILVGSGGIA DVLAALVNQP HLLVPKVAEK QFKEKFPSKH FSWEDIVRWT KLLQNITSHQ HLLTVYDFEQ EGSEELDTVI LKALVKACKS HSQEPQDYLD ELKLAVAWDR VDIAKSEIFN GDVEWKSCDL EEVMVDALVS NKPEFVRLFV DNGADVADFL TYGRLQELYR SVSRKSLLFD LLQRKQEEAR LTLAGLGTQQ AREPPAGPPA FSLHEVSRVL KDFLQDACRG FYQDGRPGDR RRAEKGPAKR PTGQKWLLDL NQKSENPWRD LFLWAVLQNR HEMATYFWAM GQEGVAAALA ACKILKEMSH LETEAEAARA TREAKYERLA LDLFSECYSN SEARAFALLV RRNRCWSKTT CLHLATEADA KAFFAHDGVQ AFLTRIWWGD MAAGTPILRL LGAFLCPALV YTNLITFSEE APLRTGLEDL QDLDSLDTEK SPLYGLQSRV EELVEAPRAQ GDRGPRAVFL LTRWRKFWGA PVTVFLGNVV MYFAFLFLFT YVLLVDFRPP PQGPSGPEVT LYFWVFTLVL EEIRQGFFTD EDTHLVKKFT LYVGDNWNKC DMVAIFLFIV GVTCRMLPSA FEAGRTVLAM DFMVFTLRLI HIFAIHKQLG PKIIVVERMM KDVFFFLFFL SVWLVAYGVT TQALLHPHDG RLEWIFRRVL YRPYLQIFGQ IPLDEIDEAR VNCSTHPLLL EDSPSCPSLY ANWLVILLLV TFLLVTNVLL MNLLIAMFSY TFQVVQGNAD MFWKFQRYNL IVEYHERPAL APPFILLSHL SLTLRRVFKK EAEHKREHLE RDLPDPLDQK VVTWETVQKE NFLSKMEKRR RDSEGEVLRK TAHRVDFIAK YLGGLREQEK RIKCLESQIN YCSVLVSSVA DVLAQGGGPR SSQHCGEGSQ LVAADHRGGL DGWEQPGAGQ PPSDT*

FIG.4

4

6/18 mTrp8 MQTTQSSCPGSPPDTEDGWEPILCRGEINFGGSGKKRGKFVKVPSSVAPSVLFELLLTEW 60 hTRP8 MQDVQGPRPGSPGDAEDRRELGLHRGEVNFGGSGKKRGKFVRVPSGVAPSVLFDLLLAEW 60 HLPAPNLVVSLVGEERPLAMKSWLRDVLRKGLVKAAQSTGAWILTSALHVGLARHVGQAV 120 mTrp8 hTRP8 HLPAPNLVVSLVGEEQPFAMKSWLRDVLRKGLVKAAQSTGAWILTSALRVGLARHVGOAV 120 RDHSLASTSTKIRVVAIGMASLDRILHRQLLDGVHQKEDTPIHYPADEGNIQGPLCPLDS 180 mTrp8 hTRP8 RDHSLASTSTKVRVVAVGMASLGRVLHRRILEEAQ - - EDFPVHYPEDDGGSQGPLCSLDS 178 NLSHFILVESGALGSGNDGLTELOLSLEKHISOORTGYGGTSCIQIPVLCLLVNGDPNTL 240 mTrp8 hTRP8 NLSHFILVEPGPPGKG-DGLTELRLRLEKHISEQRAGYGGTGSIEIPVLCLLVNGDPNTL 237 mTrp8 ERISRAVEQAAPWLILAGSGGIADVLAALVSQPHLLVPQVAEKQFREKFPSECFSWEAIV 300 hTRP8 ERISRAVEOAAPWLILVGSGGIADVLAALVNOPHLLVPKVAEKOFKEKFPSKHFSWEDIV 297 mTrp8 HWTELLQNIAAHPHLLTVYDFEQEGSEDLDTVILKALVKACKSHSQEAQDYLDELKLAVA 360 RWTKLLONITSHOHLLTVYDFEQEGSEELDTVILKALVKACKSHSQEPODYLDELKLAVA 357 hTRP8 mTrp8 WDRVDIAKSEIFNGDVEWKSCDLEEVMTDALVSNKPDFVRLFVDSGADMAEFLTYGRLQQ 420 hTRP8 WDRVDIAKSEIFNGDVEWKSCDLEEVMVDALVSNKPEFVRLFVDNGADVADFLTYGRLOE 417 LYHSVSPKSLLFELLQRKHEEGRLTLAGLGAQQARELPIGLPAFSLHEVSRVLKDFLHDA 480 mTrp8 hTRP8 LYRSVSRKSLLFDLLQRKQEEARLTLAGLGTQQAREPPAGPPAFSLHEVSRVLKDFLQDA 477 mTrp8 CRGFYQDGR----RMEERGPPKRPAGQKWLPDLSRKSEDPWRDLFLWAVLQNRYEMATYF 536 hTRP8 CRGFYQDGRPGDRRRAEKGPAKRPTGQKWLLDLNQKSENPWRDLFLWAVLQNRHEMATYF 537 ***** mTrp8 WAMGREGVAAALAACKIIKEMSHLEKEAEVARTMREAKYEQLALDLFSECYGNSEDRAFA 596 hTRP8 WAMGOEGVAAALAACKILKEMSHLETEAEAARATREAKYERLALDLFSECYSNSEARAFA 597

FIG.5

7/18

Classification and Secondary Structure Prediction of Membrane Proteins

http://azusa.proteome.bio.tuat.ac.jp/sosui/

Orientation of the N-terminus of Number of transmembrane helices of Position of transmembrane helices of	mTrp8: mTrp8: mTrp8:	IN 6 helix 1 2 3 4 5	begin 732 769 807 839 870 955	end 754 792 829 863 893 977
Orientation of the N-terminus of Number of transmembrane helices of Position of transmembrane helices of	hTrp8: hTrp8: hTrp8:	IN 6 helix 1 2 3 4 5	begin 733 770 807 843 873 955	end 755 792 829 863 893 977

FIG.6A

HYDROPHOBICITY PROFILE OF mTrp8 (MADE WITH DNAMAN SOFTWARE)

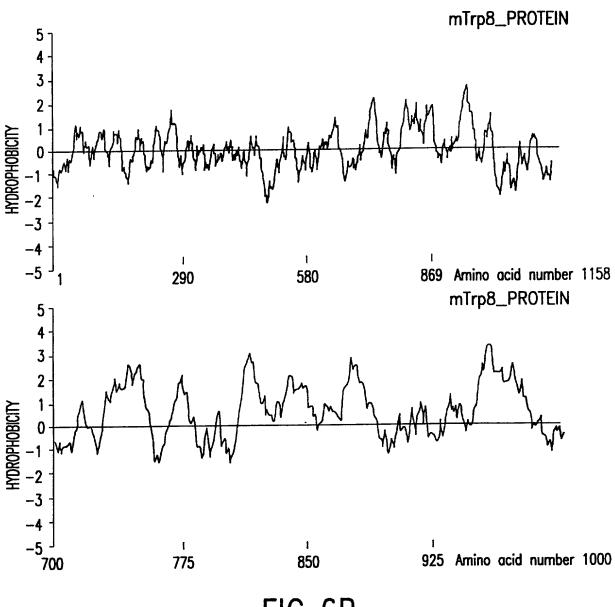


FIG. 6B

HYDROPHOBICITY PROFILE OF hTrp8 (MADE WITH DNAMAN SOFTWARE)

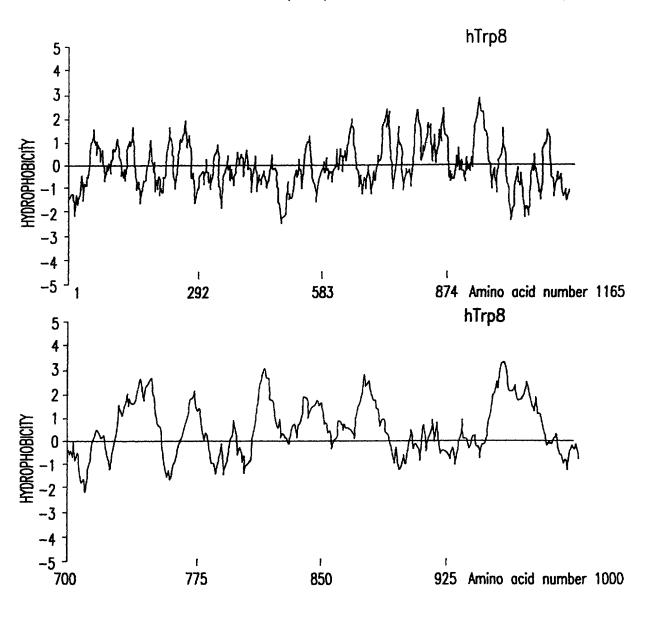


FIG. 6C

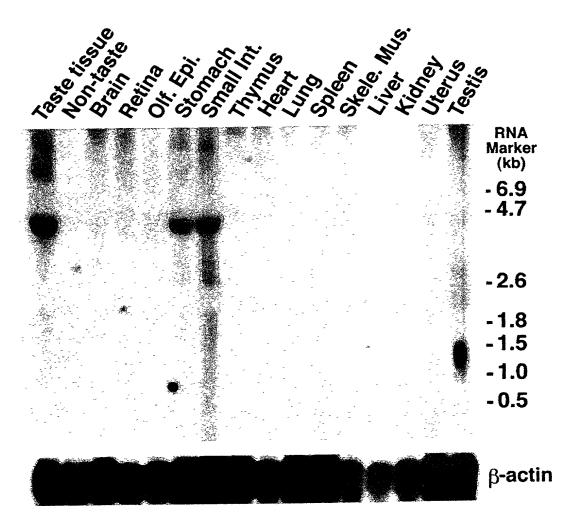
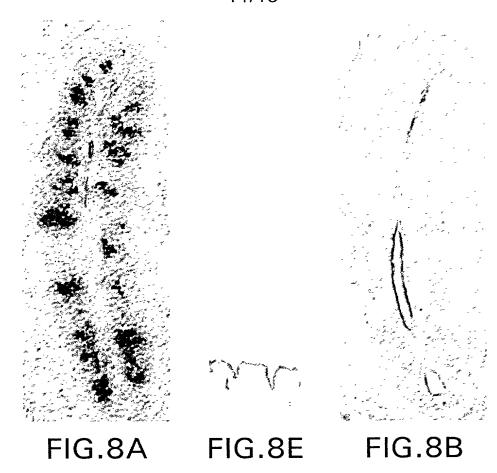


FIG.7



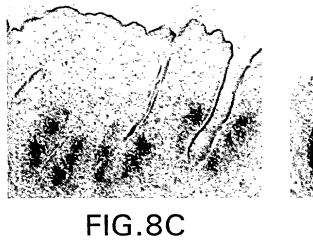




FIG.8D



FIG.9A



FIG.9B

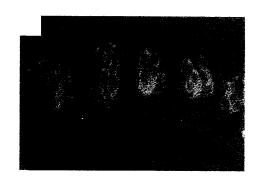


FIG.9C

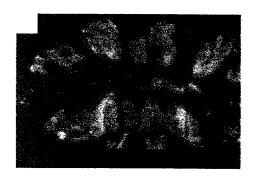


FIG.9D



FIG.9E

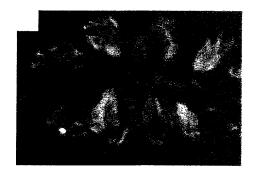


FIG.9F

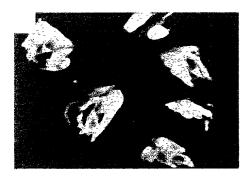


FIG.9G



FIG.9H

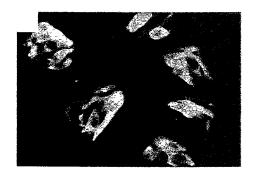


FIG.91

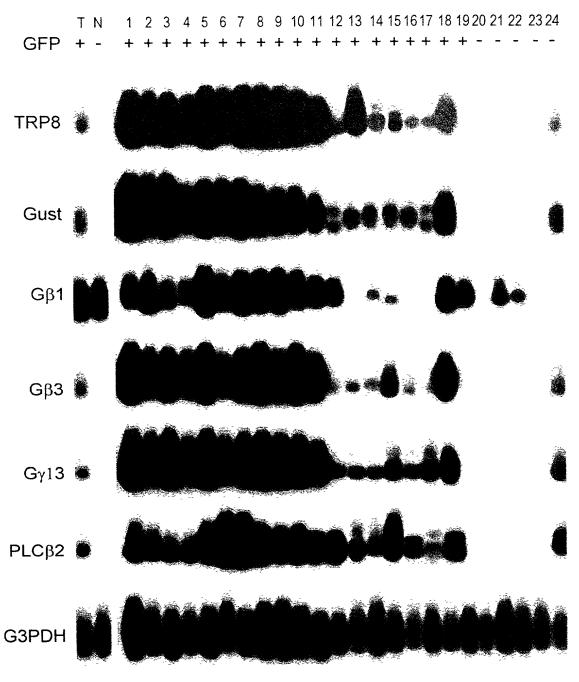


FIG.10

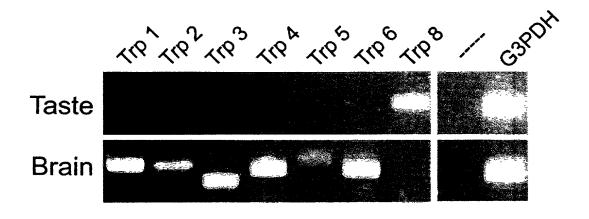
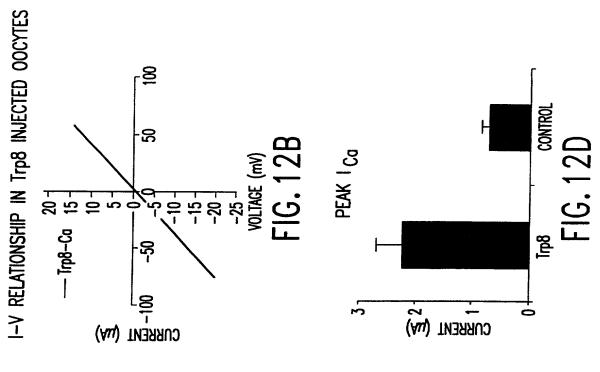
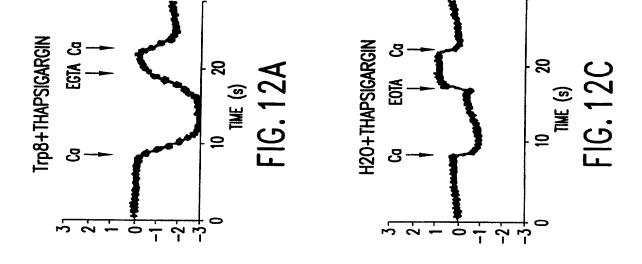


FIG. 11





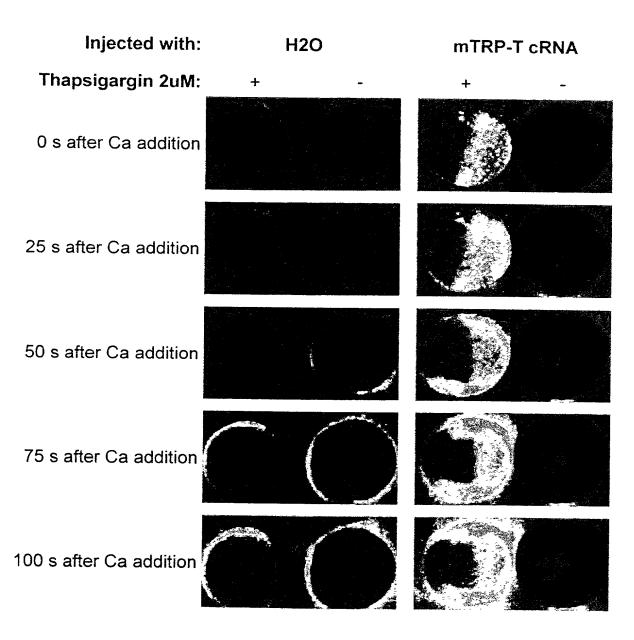


FIG.13

TRANSDUCTION OF TASTE STIMULI

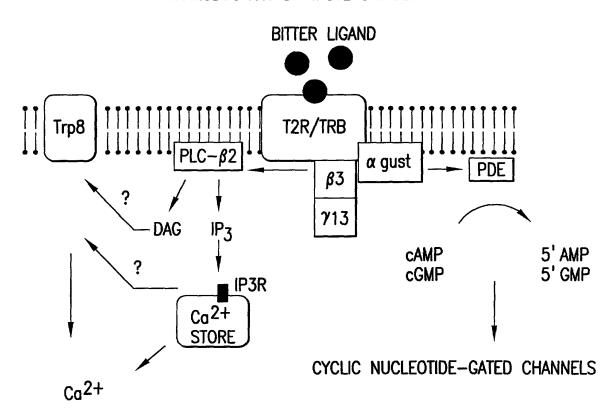


FIG. 14